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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,624	12/10/2001	David G. Wang	9926 (NCRC-0057-US)	4094
26890	7590	05/18/2005	EXAMINER	
JAMES M. STOVER NCR CORPORATION 1700 SOUTH PATTERSON BLVD, WHQ4 DAYTON, OH 45479			PATEL, NIHIR B	
			ART UNIT	PAPER NUMBER
			3743	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No. 10/016,624	Applicant(s) WANG ET AL.	
	Examiner Nihir Patel	Art Unit 3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on March 9th, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Sagal (US 6,651,732).

Referring to claim 1, Sagal discloses a thermally conductive elastomeric heat dissipation assembly with snap-in heat transfer conduit that comprises a heat conduit **14** (see figures 1-3 and column 4 lines 40-45) and a block **12** (see figures 1-3 and column 4 lines 40-45) formed of a thermally conductive material having a first thermal conductivity, the heat conduit **14** extending through a substantially portion of the block **12**, the heat conduit **14** having a second thermal conductivity greater than the first thermal conductivity.

Referring to claims 2 and 3, Sagal discloses an apparatus wherein the first thermal conductivity is greater or equal to about 10 and less than or equal to 100.

Referring to claim 4, Sagal discloses an apparatus where in the heat conduit **14** is adapted to transfer heat from a heat source along its length (see column 5 line 67 and column 6 line 1).

Referring to claim 5, Sagal discloses an apparatus wherein the block **12** is adapted to transfer heat away from the heat conduit **14**.

Referring to claim 11, Sagal discloses an apparatus wherein the block **12** has air-flow channels to provide surfaces on the block exposed to air-flow (see **figure 1**).

Referring to claim 12, Sagal discloses an apparatus wherein the thermally conductive material comprises a non-metallic material (see **column 4 lines 55-60**).

Referring to claim 13, Sagal discloses an apparatus wherein the thermally conductive material comprises a thermally conductive polymer (see **column 4 lines 55-60**).

Referring to claim 14, Sagal discloses an apparatus wherein the heat conduit comprises a heat pipe (see **figures 2, 3 and column 4 lines 40-45**).

Referring to claim 15, Sagal discloses an apparatus wherein the heat conduit comprises a tubular structure a bore through which fluid is adapted to flow to transfer heat (see **figures 1-3, column 5 line 67 and column 6 lines 1-3**).

Referring to claim 16, Sagal discloses an apparatus that further comprises plural other heat conduits **14** extending through respective substantial portions of the block **12** (see **column 5 lines 65-67**).

Referring to claim 44, Sagal discloses an apparatus wherein the block **12** has a first side and a second, opposite side, the heat conduit **14** extending through the block from the first side to the second side (see **figures 1-3**).

Referring to claim 24, Sagal discloses a thermally conductive elastomeric heat dissipation assembly with snap-on heat transfer conduit that provides a block **12** (see **figures 1-3 and column 4 lines 40-45**) formed of a thermally conductive material having a first thermal conductivity; and extending an elongated heat conduit **14** (see **figures 1-3 and column 4 lines**

40-45) through a substantial portion of the block 12, the elongated heat conduit 14 having a second conductivity greater than the first thermal conductivity.

Referring to claim 25, Sagal discloses an apparatus wherein extending the elongated heat conduit comprises extending a heat pipe 14.

Referring to claim 26, Sagal discloses an apparatus that provides a block that is formed of the thermally conductive material comprises providing the block formed of a thermally conductive polymer (see column 4 lines 55-60).

Referring to claim 27, Sagal discloses an apparatus that further comprises extending another elongated heat conduit 14 through another substantial portion of the block 12 (see column 5 line 65-67).

Referring to claim 41, Sagal discloses an apparatus wherein the block 12 transfers heat from the elongated heat conduit 14 and forming airflow channels in the block adjacent the elongated heat conduit 14 to expose surfaces of the block 12 to air flow.

Referring to claim 40. Sagal discloses a thermally conductive elastomeric heat dissipation assembly with snap-in heat transfer conduit that comprises a heat conduit 14 (see figures 1-3 and column 4 lines 40-45); and a block 12 (see figures 1-3 and column 40-45) formed of a thermally conductive material having a first thermal conductivity, the heat conduit 14 having a second thermal conductivity greater than the first thermal conductivity, the block 12 having air-flow channels adjacent the heat conduit to provide surfaces in the block exposed to air-flow (see figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 7, 8, 17, 28, 31, 32, 33, 34, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sagal (US 6,651,732) in view of Liu (US Pub. 2003/0019610).

Referring to claims 6, 8, 28, 31, 32, 33, 34 and 35, Sagal discloses the applicant's invention as claimed with the exception of providing a block that has a first segment on one side of a portion of the heat conduit, and the block has a second segment on another side of the portion of the heat conduit, the first segment having a first heat conduction distance to dissipate heat from the heat conduit, and the second segment having a second heat conduction distance to dissipate heat from the heat conduit. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a block that has a first segment on one side of a portion of the heat conduit, and the block has a second segment on another side of the portion of the heat conduit, the first segment having a first heat conduction distance to dissipate heat from the heat conduit, and the second segment having a second heat conduction distance to dissipate heat from the heat conduit. Therefore it would have been obvious to modify Sagal's invention by providing a block that has a first segment on one side of a portion of the heat conduit, and the block has a second segment on another side of the portion of the heat conduit, the first segment having a first heat conduction distance to dissipate heat from the heat conduit, and the second segment having a

second heat conduction distance to dissipate heat from the heat conduit as taught by Liu in order to improve the heat transfer process.

Referring to claim 7, Sagal discloses the applicant's invention as claimed with the exception of providing a block that comprises substantially the same first and second heat conduction distances. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a block that comprises substantially the same first and second heat conduction distances. Therefore it would have been obvious to modify Sagal's invention by providing a block that comprises substantially the same first and second heat conduction distances as taught by Liu in order to improve the cooling process.

Referring to claims 17, 42 and 43, Sagal discloses the applicant's invention as claimed with the exception of providing a heat conduit that has a first portion and a second portion angled with respect to the first portion, the first portion adapted to contact a surface of a heat source. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a heat conduit that has a first portion and a second portion angled with respect to the first portion, the first portion adapted to contact a surface of a heat source. Therefore it would have been obvious to modify Sagal's invention by providing a heat conduit that has a first portion and a second portion angled with respect to the first portion, the first portion adapted to contact a surface of a heat source as taught by Liu in order to improve the heat transfer process.

Referring to claims 18 and 30, Sagal discloses the applicant's invention as claimed with the exception of providing a block that has a vertical axis and a horizontal plane formed by two axes, the first portion of the heat conduit extending generally along the horizontal plane, and the second portion of the heat conduit extending generally along the vertical axis. Liu discloses a

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rapidly self-heat-conductive heat dissipating module that does provide a block that has a vertical axis and a horizontal plane formed by two axes, the first portion of the heat conduit extending generally along the horizontal plane, and the second portion of the heat conduit extending generally along the vertical axis. Therefore it would have been obvious to modify Sagal's invention by providing a block that has a vertical axis and a horizontal plane formed by two axes, the first portion of the heat conduit extending generally along the horizontal plane, and the second portion of the heat conduit extending generally along the vertical axis as taught by Liu in order to improve the heat transfer process.

Referring to claim 19, Sagal discloses the applicant's invention as claimed with the exception of providing a second portion of the heat conduit that has a shape selected from the group consisting of generally straight, generally S-shaped, and shaped as a loop. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a second portion of the heat conduit that has a shape selected from the group consisting of generally straight, generally S-shaped, and shaped as a loop. Therefore it would have been obvious to modify Sagal's invention by providing a second portion of the heat conduit that has a shape selected from the group consisting of generally straight, generally S-shaped, and shaped as a loop as taught by Liu in order to improve the heat transfer process.

Referring to claim 20, Sagal discloses the applicant's invention as claimed with the exception of providing a second heat conduit extending through another portion of the block, the second heat conduit having a first portion extending generally along the horizontal plane and a second portion extending generally along the vertical axis. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a second heat conduit extending through

another portion of the block, the second heat conduit having a first portion extending generally along the horizontal plane and a second portion extending generally along the vertical axis.

Therefore it would have been obvious to modify Sagal's invention by providing a second heat conduit extending through another portion of the block, the second heat conduit having a first portion extending generally along the horizontal plane and a second portion extending generally along the vertical axis as taught by Liu in order to improve the heat transfer process.

Referring to claim 21, Sagal discloses the applicant's invention as claimed with the exception of providing a block that has a first side edge, the second portion of the heat conduit a first distance from the first side edge, the first distance being a heat conduction distance of a first-segment of the block, the first segment of the block to dissipate heat from the heat conduit. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a block that has a first side edge, the second portion of the heat conduit a first distance from the first side edge, the first distance being a heat conduction distance of a first-segment of the block, the first segment of the block to dissipate heat from the heat conduit. Therefore it would have been obvious to modify Sagal's invention by providing a block that has a first side edge, the second portion of the heat conduit a first distance from the first side edge, the first distance being a heat conduction distance of a first-segment of the block, the first segment of the block to dissipate heat from the heat conduit as taught by Liu in order to improve the heat transfer process.

Referring to claim 22, Sagal discloses the applicant's invention as claimed with the exception of providing a second heat conduit extending through another substantial portion of the block, the second heat conduit having a first portion extending generally along the horizontal axis and a second portion extending generally along the vertical axis, the block having a second

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side edge, the second portion of the second heat conduit a second distance from the second edge, the second distance being a second heat conduction distance of a second segment of the block, the second segment to dissipate heat from the second heat conduit. Liu discloses a rapidly self-heat-conductive heat dissipating module that does provide a second heat conduit extending through another substantial portion of the block, the second heat conduit having a first portion extending generally along the horizontal axis and a second portion extending generally along the vertical axis, the block having a second side edge, the second portion of the second heat conduit a second distance from the second edge, the second distance being a second heat conduction distance of a second segment of the block, the second segment to dissipate heat from the second heat conduit.. Therefore it would have been obvious to modify Sagal's invention by providing a second heat conduit extending through another substantial portion of the block, the second heat conduit having a first portion extending generally along the horizontal axis and a second portion extending generally along the vertical axis, the block having a second side edge, the second portion of the second heat conduit a second distance from the second edge; the second distance being a second heat conduction distance of a second segment of the block, the second segment to dissipate heat from the second heat conduit as taught by Liu in order to improve the heat transfer process.

Referring to claims 23, 29 and 36, Sagal discloses the applicant's invention as claimed with the exception of providing a second segment that comprises airflow channels. Liu discloses a rapidly self-heat-conductive heat-dissipating module that does provide a second segment that comprises airflow channels. Therefore it would have been obvious to modify Sagal's invention

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by providing a second segment that comprises airflow channels as taught by Liu in order to improve the heat transfer process.

Allowable Subject Matter

Claims 9, 10, 37, 38 and 39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (571) 272-4803. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful the examiner supervisor Henry Bennett can be reached at (571) 272 4791.

NP
May 12th, 2005


Henry Bennett
Supervisory Patent Examiner
Group 3700

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